RADIO

POSITION AND SIZE OF GRID IMPORTANT

Determine Value of Negative Potential Necessary to Reduce the Plate Current to Zero.

In using a three-electrode vacuum tube in a radio set it is preferable to maintain the grid negative with respect to the filament in order to require the minimum amount of energy in the control of the plate circuit.

The relative position of the grid with respect to the filament and the plate and the size of the mesh of the grid, determine the value of E. E is the negative potential which must be applied to the grid in order to reduce the plate current to zero. The value of F, which is the positive grid potential that will cause the maximum or saturation current to flow in the plate circuit, is also determined by the relative position of the grid with respect to the filament and plate. If the grid is of very fine mesh, the value of E is small because the electrons in passing through the small mesh of the grid on their journey from the filament to the plate will negatively charge the grid and will be repelled. Similarly a small positive charge applied to a fine mesh will tend to accelerate the velocity of the electrons.

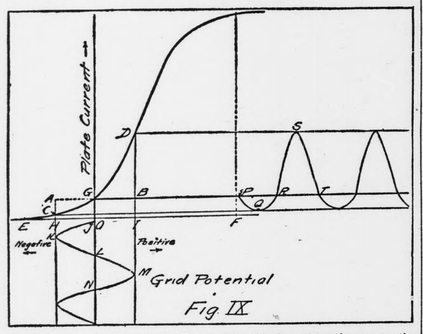


Fig. IX

In case of a very coarse mesh grid, the electrons can pass through the apertures in the grid without coming in so close to the charge on it and a relatively high potential will be required on the grid to control the electron stream, or in other words, the current flowing in the plate circuit.

Referring to Fig. VIII, O-G, is the current that will flow in the plate circuit when there is no potential applied to the grid. Suppose a positive potential as O-I is applied to the grid. The corresponding plate circuit current will be I-D or B-D, more than it was when the grid had no potential applied to it.

A negative potential of O-H is now applied to the grid where O-H is equal in value to O-I, but opposite in sign. The application of the negative potential when applied to the grid will cause the plate current to be reduced to a value H-C or A-C, less than it was when there was no potential applied to the grid. So it is seen that a negative potential when applied to the grid does not reduce the plate circuit current as much as the same positive potential increased the plate circuit current. This irregular conductivity of the tube is made use of when the tube is used as a detector or rectifier of radio signals.

The incoming radio signal is a high frequency alternating current. Let us apply an alternating difference of potential whose maximum positive value is equal to O-I and whose maximum negative value is equal to O-H, to the grid of the three-electrode tube whose characteristic curve is the same as that shown in Fig. VIII. In Fig. IX is shown the alternating difference of potential applied to the grid. Through the first quarter of a cycle, from zero at J to a maximum negative value at K, equal to O-H, the plate circuit current will vary from O-G, its value at P when no grid potential is applied to a value at Q equal to H-C.

During the next quarter of a cycle the grid potential changes from a maximum negative value at K to zero at L. The corresponding values of plate circuit current are shown by the portion of the plate current curve Q-R.

During the next or third quarter of a cycle the applied grid potential increases from zero at L to a maximum positive value at M, equal to O-I, and causes the plate circuit to increase from I-B, its value when the plate potential is zero, to I-D, an increase in plate current equal to B-D.

During the remaining fourth quarter of a cycle as the applied grid potential varies from a maximum positive value at M to zero at N, the plate circuit current varies from a value S to T.

Assuming that the characteristic curve as shown in Fig. VIII and Fig. IX was with a potential of 40 volts on the plate, then, if the plate current is to be reduced to zero by a variation of plate voltage—with no potential applied to the grid—the plate voltage must be reduced to zero or a reduction of 40 volts must be made. If the 40 volts is maintained on the plate and a negative potential of E-O is applied to the grid, it will reduce the current to zero.

Suppose O-E represents five volts. It can be seen then that a change of five volts in grid potential will accomplish the same result that 40 volts will in the plate circuit. The ratio of the voltage change in the plate current is called the factor of the tube and is denoted by the letter "K."

In the tube just discussed the amplification factor would be 40 divided by five or eight. The amplification factor of the tubes available for amateur use at present is usually between 4 and 10. The amplification factor is a function of the dimensions and relative positions of the elements in the tube.

An incoming radio frequency alternating current applied to the grid of a three-electrode vacuum tube is not only rectified but the variation in the plate is multiplied by "K," the amplification factor of the tube. This makes the three-electrode vacuum the most sensitive detector available.

In actual tubes the point "G" on the characteristic curves as shown in Fig. VIII and Fig. IX may not fall on such a point of the curve that symmetrical changes in grid potential will cause a symmetrical change in plate current, starting with zero potential on the grid.

It then becomes necessary to apply a constant potential to the grid by means of a battery in the grid circuit, called the "C" battery, to maintain the grid at such a point on the characteristic curve that symmetrical changes in grid potential will cause the maximum symmetrical current to flow in the plate circuit.

Big Ships' Radio.

The radio equipment of the ships Paris and Lafayette is described in a recent issue of Radioelectricity. On both steamers a five-kilowatt tube transmitter has been installed with a wave range of between 2,000 and 9,000 meters. A five-kilowatt motor-generator set is used to produce the plate-high tension for four rectifying and four oscillatory tubes, and the low voltage current for the heating of the filament of these tubes. Both vessels are equipped with a radio range-finder, or "radio goniometer," which, reduced to plain English, means a radio compass. A distance of 3,400 kilometers has been covered safely by messages sent from the transmitter of the Paris.

Radio for Animal Training.

Experiments with the radiophone as an aid in animal training are to be made at the Hippodrome, New York city, by George Power, trainer of the elephants, to determine whether it will be possible for his big pets at some future date to execute his orders on the stage while the trainer himself is absent.

Professor Bell a Radio Fan.

Finding the telephone, his own invention, a source of annoyance to him, Alexander Graham Bell had it removed from his home. With the radiophone there is a difference, it seems, for Mr. Bell, now seventy-five years old, is said never to tire of "listening in" and experimenting with the new device. There are few more ardent enthusiasts, declare his friends.

RADIO DON'TS

Don't expect the circuit to oscillate with equal strength over a great range if you tune the grid circuit with capacity alone. Keep the ratio of L to C as near constant as possible while tuning.

Don't expect a circuit to oscillate if the natural period of the tickler circuit is equal to the natural period of the grid circuit.

Don't place the tickler or plate variometer tight against the grid coil or a change in the plate circuit will detune the grid circuit.

Don't expect high impedance tubes to oscillate freely in a circuit designed for low impedance tubes.

Don't discard a regenerative receiver until you have tried more than one detector tube.

Don't forget that a soft gaseous tube is the best detector, and that a hard tube is the best oscillator.

Don't treat inductance coils with shellac or any other varnish or compound that will absorb moisture.

HOW TO EXHAUST A TUBE

Amateurs Can Make Own Experimental Devices by This Method.

Amateurs who are constructing their own experimental tubes, and there are many of them in these days when the price is high and the tubes are scarce, find the hardest part of the construction in obtaining a good vacuum. The following is a simple but effective method of doing it:

Have a small glass tube projecting beyond the end through which to draw the air.

Get rubber bulb, or ball, large enough to hold all the air contained in the valve, and more and which should fit on the glass tube.

Squeeze all the air out of the bulb or ball, and holding it, so squeezed, fit it on the glass tube. Now let go and the air will be drawn out of the valve. Leaving the bulb on, seal up the glass tube by holding it over a bunsen burner.

Many tubes that seem to be gone entirely can be revived by this method.

Call Letters for Stations.

Every transmitting station in the United States that is lawfully licensed by the government to send messages is assigned a call letter. This call letter is very much in the nature of the telephone numbers with which we are familiar. They serve to identify the station when it is transmitting. Most of the commercial and naval calls begin with the letters "W," "K" or "N."

Medical Lectures Broadcast.

Medical lectures are being broadcast from Washington by radio telephone three times a week. The lectures are delivered from the office of Surgeon General Cumming by Dr. C. C. Pierce, who speaks for about fifteen minutes, Tuesdays at 4:15 p. m., on a 1,100-meter wave, and Wednesdays and Thursdays at 9 p. m., on a 375-meter wave, from the Anacostia station.

Give Course in Radio.

Tufts college, New York, will soon institute a course in wireless that will be most unique in that there will be no tuition fees, no buildings, no campus and no enrollment.

WATER TROUGHS EASY TO BUILD

Good Plan to Select Well Drained Site to Prevent Stock From Making Mud Holes.

ALSO PACK AND LEVEL LAND

Cement Wash Can Be Applied With Brush or Broom and Makes Smooth Surface and Also Insures Water-Tightness.

(By W. G. Kaiser, Agricultural Engineer.)

The construction of a concrete trough like that shown in the drawing is not a difficult task and any farmer can build it.

A watering trough should be placed on well drained ground, because under the best of conditions the livestock will in time make mud holes unless a platform is built, or the holes around the trough are filled in as soon as they are made. Sometimes it is advisable to put the trough on a small knoll in order that the water will quickly drain away.

The ground under the trough should not only be drained but also leveled and packed.

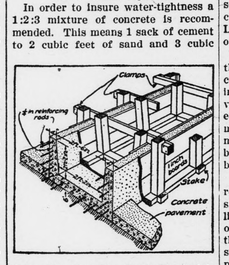
Outside Form of Trough.

The outside forms of the trough are made of one inch boards and 2 by 4-inch pieces as shown in the drawing. After these forms have been securely braced, the concrete can be deposited in the bottom to half the depth of the floor. Reinforcement consisting of ¾ inch round rods are then placed on the partly constructed floor. These rods are bent in "U" shape so that the ends will project up into the sides and reinforce the walls. All the rods are bent to the proper shape before any concrete work is started, so that they can be quickly put in and the remainder of the concrete floor placed without delay or making any joints.

The inside form which has been made previous to mixing any of the concrete is then quickly lowered in proper place and fastened to the outside forms with clamps as shown in the drawing. Speed is necessary in order that the walls can quickly be placed so there will be a strong bond between walls and floors.

Insure Water-Tightness.

In order to insure water-tightness a 1:2:3 mixture of concrete is recommended. This means 1 sack of cement to 2 cubic feet of sand and 3 cubic feet of pebbles or crushed rock. The aggregates should be free from sticks, soil or foreign material. Only enough clean water should be used in mixing to make concrete of a jelly-like consistency.



When You Get This Tank Finished It Will Last as Long as You'll Probably Ever Need It.

As the concrete is placed it should be spaded next to the forms in order to force the larger rocks back into the mass and let the mortar work out against the forms, resulting in a smooth, dense surface.

As soon as the concrete has hardened sufficiently to be self-sustaining, the inside form is removed and the interior of the trough given a cement wash made by mixing cement and water until it is about as thick as cream. This wash can be put on with an ordinary brush or broom. The wash will make a smooth surface and insure water-tightness.

The inside of the trough is given a slope outward toward the top. This is important because if water freezes in the tank, the pressure will lift the ice and thereby prevent the formation of crack in the walls.

For a trough of the size shown in the drawing, the following materials will be needed:

Materials Required for Tank.

Outside dimensions	3 ft. 2 in. by 8 ft.
Walls	2 ft. 8 in. high.
Floors	6 in. thick
Concrete Mixture	1:2:3
Volume of Concrete	1¼ cu. yd.

Materials Required.

Portland cement	9 sacks
Sand	¾ cu. yd.
Pebbles or broken stone	1 cu. yd.
¾-in. round steel rods	218 ft. (654 lb.)

For each additional foot of length add to the foregoing quantities:

Portland cement	1 sack
Sand	2 cu. ft.
Pebbles or broken stone	3 cu. ft.
¾-in. round steel rods	22 ft. (66 lb.)

ALFALFA SEEDED IN SUMMER

Considerable Success Attained at University of Illinois in Rotation With Corn.

Considerable success has been attained in seeding alfalfa on the dairy farm at the University of Illinois where a rotation of corn for silage and alfalfa for hay are the principal crops. Fall wheat is sown after the corn is cut for the silo. The next year the wheat stubble is plowed as early as possible and a very thorough seed bed prepared. The alfalfa is seeded as soon as there is sufficient rain. About the 25th of September wheat is drilled. This gives a crop of wheat and two cuttings of alfalfa the next year.

Fresh Water Essential.

Plenty of fresh, pure water is one of the essentials in conducting a successful poultry business.

Eggplants All Summer.

Eggplants continue to produce until frost comes and, properly prepared, no other vegetable is more palatable.

Cleanliness Is Important.

One of the things which should receive first consideration in dairy farming for the production of a high quality of milk or cream is cleanliness.

Early Pullets Are Best.

Ten early-hatched pullets laying in the fall are worth a hundred that hatch so late they won't lay until next spring. Winter eggs pay best.

Cleanliness about the stable and in handling dairy products is the only safeguard against infection.

BEEKEEPING OFFERS BIG OPPORTUNITIES

Clover Region Particularly Adapted to Industry.

Few Places in Which It Is Not Possible to Keep Honey Gatherers With Good Profit Under Proper Management.

(Prepared by the United States Department of Agriculture.)

The clover region of the United States offers splendid opportunities for beekeeping. These possibilities, together with the requirements necessary for the success of the undertaking, are discussed in a recent publication of the United States Department of Agriculture, Farmers' Bulletin 1215, Beekeeping in the Clover Region, by E. F. Phillips and George S. Demuth of the division of Bee-Culture Investigations. While not all parts of the clover region are equally good, there are few places, it is pointed out, in which it is not possible to keep bees with profit under proper management.

The typical clover region occupies the northeastern part of the United States, extending west into Minnesota and south approximately to the Ohio river and Mason and Dixon's line. It appears on the west coast in Washington and Oregon. In both east and west the region extends into Canada, some of the best portions being located north of the national boundary. Limited areas of less value are found outside these boundaries.

Beekeeper Should Take Pains to Get Best Strains.

The opportunities for beekeeping in this region, are not being utilized as completely as in some other beekeeping regions of the country. There are vast areas of the clover region not adequately covered by bees, and also many places where, because of the methods of beekeeping practiced, the beekeepers are failing to produce the best possible crops.

Beekeeping to be profitable in this region must be conducted with all possible skill. Better methods, it is believed, will result in a greater development of the industry. Because of the presence of European foulbrood in some parts of the clover region, and especially because of the superior quality of the Italian race of bees, the beekeeper of this region will find it greatly to his advantage to keep this variety. Italian bees are able, under good management, to clean out the larvae dead of European foulbrood. Not all strains of this race are equally good for this purpose, and the beekeeper should take pains to get the best.

Copies of the bulletin may be had free upon addressing a request to the Department of Agriculture, Washington, D. C.

IN RAISING FALL-SOWN OATS

Fertile, Moist Soil Needed as Crop Requires Large Quantity of Water to Thrive.

The soil for fall-sown oats should be reasonably fertile and should hold moisture well, as this crop requires a large quantity of water and may be severely injured by drought, says the United States Department of Agriculture. Any soil which will grow a good crop of cotton or corn will produce oats, though the best results will be secured on the heavier loams. Heavy, or "spewing out" of the plants is most likely to occur on clay soils, particularly on those deficient in humus. A well-fertilized sandy or sandy loam soil will generally prove more satisfactory, particularly if it is well filled with humus, so that its moisture-holding capacity is high. Good drainage is essential, however, as winterkilling is most likely to occur on poorly drained land. Rust and other diseases are alst most severe on low, poorly drained areas. As the varieties of oats commonly grown in the South, with the exception of the winter turf, have stiff straw, they are less likely to lodge on rich soil than those grown in the North.

PROPER BALANCE TO MANURE

Some Farmers Try Little Experiment on Small Piece of Land to Find Condition.

It is a pretty good idea, and one followed by a lot of hard-headed, practical farmers, to balance the barnyard manure a little with either rock or acid phosphate. Barnyard manure is a balanced ration when it comes to plant foods for some crops. That is why some farmers try a little experiment on a half acre or so of ground just to see what their land lacks. About forty or fifty pounds of acid phosphate per ton of manure, or 400 to 500 pounds per acre, may be applied to a small part of the field, and the results will show whether it will pay to put the fertilizer on the whole field.

It makes the acid phosphate easy to apply simply to spread it evenly on the top of each spreader load of manure so that each ton of the manure will carry with it the above mentioned amount of the phosphate.

Protect Stock From Flies.

Dairymen, farmers and live stock raisers should employ intelligent and effectual means during the fly season to protect their stock against heavy loss incurred through this irritating pest.

Clean Out Drain Outlets.

Looking over the tile drain outlets and cleaning out those that need it is a good job that may save money later.

In Christian art the goat is regarded as an emblem of impurity.

Longer Skirts; Garments Loose

One look at the women who represent the newer modes of dress is convincing proof that the longer silhouette is at last a part of our daily existence, says a fashion writer in the New York Times. There is the greatest divergence in the designs and the lengths of the costumes seen upon the street. But where smart women gather one sees the longer skirt, the obviously bloused waist and the flowing sleeves. Not one of these newer attributes appears alone, but all of them together.

Evening Frock of Silver Gray Crepe With Shades of Gray Embroidery.

The frocks are an amalgamation of long lines. The smarter ones pile length upon length, and they are so full and ample in proportion, though with drooping lines, that they almost guarantee a straight silhouette to the "widest" woman.

At the "street fair," in the restaurants, private parties—at all of these places the longer silhouette predominates. The short skirt for suits—that is, the conservatively short skirt—still holds good, as it should, in the matter of practicality and good sense. But for her more formal dress, for her more picturesque attire, the modern woman has elected, this season, to be "floppy" in line, full as to material and graceful in the vision that she presents to the world.

Flappers Cling to Short Skirts.

Only the so-called "flappers" are indulging in the ultra-short skirts, and even these begin to look a trifle exaggerated. Their skirts are almost too short, though they still go as part of the general scene. In the fall they probably will be relegated to the background and a more middle-distance point of view as to skirt length will have seized upon even this generation.

There are numbers of capes. There are more long coats. Everything is as loose as it can well be to retain any line at all. The lines really converge into one another, making a series of drooping cascades that become as one, so well thought out is the process.

A good example of the silk cape dress is made of one of those heavily ribbed white silks of which there are any number upon the market today. Of course there must be some relief to the general background of white, and this result has been achieved by the use of steel and red beads embroidered in an all-over design on the top portion of the gown. Then the embroidery is repeated in a fine line about the standing collar of the cape, and the shirring that gives the fullness to the lines of the wrap is further held in place by silken threads of the same coloring.

Some of the very latest last-word dresses seem to be making an attempt to heighten the waistline. That is, those from Paris give hints in this direction. The dress that is slightly visible under this cape is an example of that sort. Although the waistline is a trifle higher than most of those that we have been accustomed to see, it still is conspicuous. In order to make it stand out to the utmost of its powers, there has been placed in the direct center a rosette made up of the same colors as the embroidery. This adds a good deal to the effect of the general design and at the same time serves to establish a new point for the ending of the waistline. Whether this will remain as an accepted thing is yet to be decided. In the interval, it establishes a new line of thought which may carry us on to undiscovered paths.

Silk for Midsummer Frock.

Silk is the fabric for the midsummer dress, and more excellent things are being done with silk in the matter of design than ever have been done in the handling of that material. There are dresses of crepe and taffeta which are lovely to behold. There are silk capes and silk coats and silk hats. In fact, there is no part of the realm of dress where silk has not taken the stand of being the leading fabric and where it has not successfully maintained that lead.

A long coat of heavy crepe silk has been trimmed with monkey fur. But more original, and to some minds more beautiful, is the idea of trimming a heavy silk material with a big, rolling collar of chenille. This has been well done in a long cape coat of exceptionally good line, which had a low set draped belt at the back and long, loose sleeves, to which was added the cape effect that stretched across the back. The chenille collar had long tassels which hung down the back when the collar was draped about the throat.

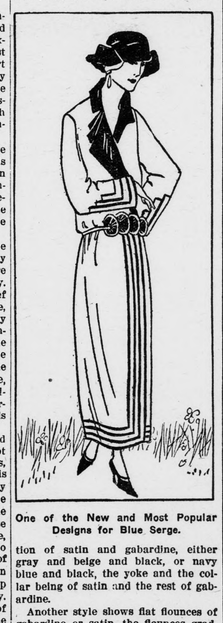
Another smart costume made of black heavy crepe has appeared, trimmed with silver in Chinese design, with a high collar which served to carry out the prevalent Russian effect. This may seem like too much of a combination of ideas, but the ultimate effect was charming.

Chinese embroidery is appearing on many of the modern gowns in unexpected ways. For instance, there was a frock of soft serge. It had around the sleeves a band of vermilion and yellow Chinese embroidery near the elbows. From these bands hung long and loose sleeve panels which flopped about. Across the front of the bodice and supporting a long front skirt panel there was another band of the same Chinese embroidery, and these little spots of red did a great deal toward giving snap to the dress.

The short coat-cape deserves mention, for many of them are bedecking women who, in past seasons, would have scorned capes as being out of their style. It is astonishing how all sorts and conditions have taken to the cape this season. Most of the smarter short capes are loose and flowing at the back, and in the front they cross or fasten into the belt in some way or other. A short coat that can be worn with little dresses or over the separate skirt has a straight and loose back and front with very wide, hanging sleeves and invisible fastenings. This is made in a light-weight duvetyn that is called summer duvetyn and in a dull almond green. Over a plaid silk dress it looks particularly well, for this is a combination that is much favored by the French, and that is bound to achieve much success here.

Cloaks Things of Beauty.

The summer cloaks, made regardless of any dresses designed to go with them, are unlike any of their predecessors. They are things of beauty, but at the same time intended as a protection from wind and weather. Certain voluminous gray-blue coats suggest the cloaks of an Italian officer, or there is the cape plaited or gathered into a deep shoulder yoke, which is often a combination of satin and gabardine, either gray and beige and black, or navy blue and black, the yoke and the collar being of satin and the rest of gabardine.


One of the New and Most Popular Designs for Blue Serge.

Another style shows flat flounces of gabardine or satin, the flounces graduated, with a wide one at the hem and narrower ones making their way up the expanse of the wrap.

For traveling the shepherd's plaid coat or cloak is common. It is likely to be trimmed with some brilliant bit of kid, either white, green or cherry colored.

An afternoon dress of dark blue serge, made with many points of the newer and more exclusively accepted styles, keeps to that conservative appearance much desired among a large class of women.

PANTALOONS FOR LITTLE TOTS

Combination Outfits Promise to Have Increasing Favor; Allover Romper Worn Under Dress.

Combination pantaloon dresses are to have increasing popularity; the pantie effect may even go to extremes and outclass the dress altogether. The newest show the pants developed in an allover romper worn under the dress, which is a kind of jumper, belted. This gives two garments, instead of one.

Keep in mind the fact that white dominates in spring fashions, that the individual demand is for exceeding simplicity. Lower prices than those of a season ago are demanded, and sport wear must have more than ordinary consideration.

Buy plenty of sweaters, with slip-overs in the lead, and you can't go far wrong.

Undergarments.

Pink silk elastic is both good looking and practical for holding up all sorts of brassieres and camisoles when used for shoulder straps. It can be used plain or covered with shirred ribbon. One of the newest breakfast jackets is a slipover trimmed with frills. Crepe de chine, georgette or organdie are favored materials. Organdie flowers are chic touches for the camisole worn under sheer frocks and blouses. Lavender is gaining favor for all sorts of underwear. Garters should match hosiery. Pairs trimmed with flowers are most popular.

To Trim Blouses.

Gingham is one of the well-liked trimming medius for blouses and is especially effective combined with lighter-weight fabrics. It is evidenced in both striped and checked effects.

Frilly Neckwear.

Fluffy, frilly neckwear, vestees and guimpes are not so fashionable, but the rather tailored effects seem to be holding first place at the present time

IMPROVED UNIFORM INTERNATIONAL

Sunday School Lesson

(By REV. P. B. FITZWATER, D. D., Teacher of English Bible in the Moody Bible Institute of Chicago.)

Copyright, 1922, Western Newspaper Union.

LESSON FOR JULY 2

EZEKIEL, THE WATCHMAN OF ISRAEL

LESSON TEXT—Ezekiel 2:1-3:21.

GOLDEN TEXT—Seek ye the Lord while He may be found; call ye upon Him while He is near; let the wicked forsake his way, and the unrighteous man his thoughts; and let him return unto the Lord, and He will have mercy upon him; and to our God, for He will abundantly pardon.—Isa. 55:6-7.

REFERENCE MATERIAL.—II Kings 17:13, 14; Isa. 63:13; Jer. 1:1-19; Matt. 23: 37-39; Acts 20:18-21, 26, 27, 29-31.

PRIMARY TOPIC—The Shepherd and His Sheep.

JUNIOR TOPIC—Ezekiel Watches and Warns Israel.

INTERMEDIATE AND SENIOR TOPIC—Facing a Hard Task.

YOUNG PEOPLE AND ADULT TOPIC—The Duty of Warning Others.

I. Ezekiel's Call (vv. 1, 2).

1. Commanded to Stand Up (v. 1). Ezekiel was given a vision of the Almighty God on His throne of glory (ch. 1). The purpose of this vision was to give him a synthetic grasp of the execution of the divine will through the powers and forces which he had created. Before the vision the prophet fell prostrate upon his face. The essential equipment of a minister for the discharge of his task is a vision of the Almighty.

2. Filled With the Spirit (v. 2). By the Spirit the divine energy entered him and enabled him to execute the commission given to him.

II. Ezekiel's Commission (vv. 3-8).

1. The Moral Condition of the People (vv. 3, 4). (1) A rebellious nation (v. 3). This rebelliousness perhaps referred to their heathen idolatrous practices. (2) Impudent children (v. 4). "Impudent" literally means "hard of face." It means the grossest perversity which caused them to stand up in the presence of the prophets of God without a sense of guilt or compunction of conscience.

2. The Charge (v. 4). He was to deliver the message of God. He was to declare, "Thus saith the Lord God."

3. The Difficulty of His Task (vv. 5-8). He was to deliver the message of God whether they would hear or forebear. He was thus apprised of the difficulty of his task and warned not to be rebellious as the people had been. Ezekiel was to fearlessly execute his commission, though the attitude of the people be as "briers" and "thorns" and "scorpions." The life of a man of God will run counter to the world.

III. Ezekiel's Experimental Qualifications (2:9-3:16).

Before one can preach to others he must have an experience—must be in sympathetic accord with God and His message.

1. Eating the Book (2:9-3:9). This book contained God's woes upon the stiff-necked and rebellious people (v. 10). In order to speak God's threatenings effectively to others we must inwardly digest and appropriate them ourselves. The eating of the book was in his mouth as honey for sweetness. Though his ministry was difficult and the judgment severe, the prophet was in entire sympathy with God's purpose and found delight in His will. The result of this eating was that Ezekiel was made "hard of face and forehead" to go against the people who were "hard of face and forehead."

2. Urged on by the Spirit (3:10-14). In order to strengthen Ezekiel for his task, the wonderful symbolism of God's providential agencies which had been before him in chapter 1 was brought to his attention, assuring him that God would accompany him to his new destination. He went in bitterness to the captives. By "bitterness" is meant sadness on account of the calamities of which he was the messenger (3:14).

3. Entering Into Sympathy (v. 15). In order to minister to a people one must enter into sympathy with them; must show that the message is from the depth of the heart; that to declare the message of woe is a great grief. Ezekiel mingled his tears with theirs.

IV. Ezekiel's Grave Responsibility (3:17-21).

God made him a watchman. Every minister is a watchman over his flock. Two things were required of him:

1. To Hear the Word at God's Mouth. The source of his message was God's Word. So today the minister is to get his message from God.

2. Sound the Warning (v. 17). After he heard God's message he was to speak it out. The same duty is upon the minister today. Cases in point for his guidance (vv. 18-21):

(1) When God says to the wicked "Thou shalt surely die" (v. 18), and the watchman fails to warn him, the wicked man shall die in his iniquity, but his blood shall be required at the watchman's hand.

(2) If the watchman warn the wicked and the warning is unheeded (v. 19), the wicked man shall perish, but his blood shall be required at the watchman's hand.

(3) When a righteous man turns to do iniquity and God gives him over to stumbling in his own sin, his past seeming righteousness will be of no avail, but his blood will be required at the hand of the watchman if he fail to warn him (v. 20).

(4). If the watchman so warns the righteous man that he fail not into sin, the man shall be saved and the watchman hath delivered his soul.

Ministers have most solemn obligations, that of discharging their obligation whether men will hear or forefear.

Somsan and Delilah.

And it came to pass afterward, that he loved a woman in the valley of Sorek, whose name was Delilah, and the lords of the Philistines came up unto her, and said unto her, Entice him, and see wherein his great strength lieth, and by what means we may prevail against him, that we may bind him and afflict him: and we will give thee every one of us eleven hundred pieces of silver.—Judges 16:1, 5.

The Wise Shall Understand.

Many shall be purified and made white, and tried; but the wicked shall do wickedly; and none of the wicked shall understand; but the wise shall understand.—Daniel 12:10.

Being Wise.

It is better to be wise and not to seem so, than to seem wise and not to be so.—Plato.

Honest Error.

Honest error is to be pitied, not ridiculed.—Chesterfield.

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JOB WORK A SPECIALTY

VOL. XXXV. NO. 26.

ASSASSINS SLAY DR. RATHENAU

Berlin Police Head Raises Offer of Reward for Capture to 1,000,000 Marks.

GOVERNMENT TAKES ACTION

Check Put on Royalists—Army Demonstrations Forbidden—State of Emergency to Be Proclaimed.

Berlin.—Dr. Walter Rathenau, German foreign minister, who was more closely identified than any other German with the efforts for the rehabilitation of this country since the war, was shot and killed by two or more unknown assassins while on his way from his residence to the foreign office.

The minister was subjected to a hail of bullets, one of them striking him in the throat and passing upward to the brain, while others struck him in various parts of the body. Hand grenades also were thrown, almost wrecking the car in which Dr. Rathenau was riding, and inflicting further injuries on him.

Dr. Rathenau was struck by at least eight bullets, any one of which would have proven fatal, according to the autopsy.

Chancelor Wirth's government is marshaling the nation's liberal elements to the defense of labor parties, as it did during the Kapp revolt. Announcement is made that the government will establish extraordinary courts for the trial of Nationalist plotters, and that a state of emergency for Prussia will be proclaimed. All regimental reunions and militaristic demonstrations are to be prohibited. Yet, despite vociferous cries of "long live the Republic," which resounded through the reichstag chamber at the close of a memorial session for Rathenau, thoughtful men of all ranks and parties were silently but gravely apprehensive for the nation's fate.

While the heat of resentment and partisan feeling has not sufficiently cooled to warrant a sure appraisal of the direction in which the political effect of Rathenau's assassination will spread, yet this much is certain—the government is facing a far more perilous situation than it did when nationalist bullets struck down Erzberger in the Black Forest ten months ago.

The minister was shot and instantly killed as he was leaving his residence in Grunewald, a suburb of Berlin, for the foreign office in an automobile. It has been established by the police that the shots were fired by two persons in a strange automobile, and that they used automatic pistols. Chief of Police Richter personally is conducting the investigation.

Some witnesses of the assassination declare three men were in the motor car from which the shots were fired at Dr. Rathenau, and that he was accompanied by a woman when he left his vila at Grunewald for the foreign office. Five minutes later the automobile returned to the vila with Dr. Rathenau dead.

The prefect of police raised the offer of reward for the capture of Dr. Walter Rathenau's assassin to 1,000,000 marks.

Dr. Rathenau, who was unmarried, used alternately as a residence his own vila situated in the garden adjoining the foreign office. He also had a country seat at Freilnwald, not far from Berlin.

The emotion which marked the brief addresses of Chancelor Wirth and President Loebe before the reichstag on the assassination reflected sentiments which were shared by many others, while the rioting of the radicals throughout what was to have been a decorous memorial to the dead foreign minister reflected the feeling of unrelenting vengeance vowed in behalf of the German proletariat. Never did the reichstag witness such scenes of turbulence and execrations. Dr. Karl Heilferich, the nationalist leader, who had attacked Rathenau in a savage speech in the reichstag, sat curled up in his seat far to the right of the house. He appeared to be in a very depressed and somewhat fearful state.

URGES NEW ALIEN BAR

House Member Would Admit Only Persons Eligible to Citizenship.

Washington.—Under a bill designed to tighten up the immigration law, introduced by Chairman Johnson of the house Immigration Committee, admission for permanent residence in this country would be granted only to aliens eligible for citizenship, thus, it was pointed out, shutting the gates to Japanese, Chinese, Mongolians and others not granted the right of citizenship.

QUIT MT. EVEREST ATTEMPT

Climbers Reach Altitude of 27,350 Feet, a Record Height.

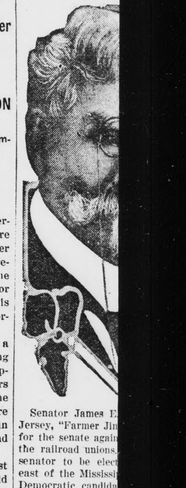
London.—Sir Francis Younghusband, president of the Royal Geographical society, stated regarding the Mt. Everest expedition that the breaking of the monsoon might definitely frustrate any further effort at reaching the summit. He said that in attaining the altitude of 27,350 feet the expedition had passed the standard of human achievement. The summit is 29,140 feet in height.

WILLIAM ROCKEFELLER DEAD

Associated With Brother, John D., in Development of Standard Oil.

New York.—William Rockefeller, financier and brother of John D. Rockefeller, died at his home, Rockwood Hall, North Tarrytown, of pneumonia, which developed from a cold contracted in recent heavy rains. Five physicians were in attendance, but Mr. Rockefeller's advanced age and many years of ill health proved a great handicap in fighting the disease. He was eighty-one years old.

JAMES E.
"Farmer Jim"
for the New J



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